Toxicology and Applied Pharmacology

144

Official Journal of the Society of Toxicology

Editorial Board

Karl F. Benitz

Frank R. Blood

Eldon M. Boyd

Kenneth P. DuBois

John P. Frawley

Seymour L. Friess

Leon Golberg

Ted A. Loomis

Gabriel L. Plaa

Robert L. Roudabush

R. Tecwyn Williams

Editor:

C. BOYD SHAFFER

Volume 7, 1965

Academic Press

New York and London

Copyright ©, 1965, by Academic Press Inc.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the publishers.

MADE IN THE UNITED STATES OF AMERICA

CONTENTS OF VOLUME 7

NUMBER 1, JANUARY 1965

IRA ROSENBLUM, ARNOLD WOHL, AND ARTHUR A. STEIN. Studies in Cardiac Necrosis. I. Production of Cardiac Lesions with Sympathomimetic Amines 1

IRA ROSENBLUM, ARNOLD WOHL, AND ARTHUR A. STEIN. Studies in Cardiac Necrosis. II. Cardiovascular Effects of Sympathomimetic Amines Producing Cardiac Lesions 9

ERNEST C. HAGAN, PAUL M. JENNER, WM. I. JONES, O. GARTH FITZHUGH, ELEANOR L. LONG, J. G. BROUWER, AND W. K. WEBB. Toxic Properties of Compounds Related to Safrole 18

HOWARD W. NASH, D. L. BOATMAN, AND J. P. LONG. Respiratory Stimulating Properties of Some Derivatives of Indane 25

DANIEL R. FARNELL. Toxicity of Intravenously Injected Uranium in Guinea Pigs 32

GABRIEL L. PLAA AND ROBERT E. LARSON. Relative Nephrotoxic Properties of Chlorinated Methane, Ethane, and Ethylene Derivatives in Mice 37

MARTIN W. WILLIAMS, CHARLES S. WILLIAMS, AND MAX J. KARTCHNER. Ischemic Arm Pain and the Nonnarcotic Analgesic Mefenamic Acid *N*-(2,3-Xylyl)anthranilic Acid 45

HARRY J. ROBINSON, HEBERT C. STOERK, AND OTTO E. GRAESSLE. Studies on the Toxicologic and Pharmacologic Properties of Thiabendazole 53

JOSEPH J. MCPHILLIPS. Effect of Chlorcyclizine on the Toxicity and Metabolism of Octamethyl Pyrophosphoramide 64

IAN J. TINSLEY, JESSE F. BONE, AND EDWARD C. BUBL. The Growth, Reproduction, Longevity, and Histopathology of Rats Fed Gamma-Irradiated Flour 71

VINCENT A. SEDLAK. Solubility of Benzene Hexachloride Isomers in Rat Fat 79

L. G. HART, R. L. DIXON, J. P. LONG, AND B. MACKAY. Studies Using *Clostridium botulinum* Toxin—Type A 84

JÖRGEN BÄCKSTRÖM, ESKIL HANSSON, AND SVEN ULLBERG. Distribution of C^{14}-DDT and C^{14}-Dieldrin in Pregnant Mice Determined by Whole-Body Autoradiography 90

A. HORITA. The Antagonism of Monoamine Oxidase (MAO) Inhibitors by the Red Blood Cell and Its Constituents 97

J. E. WILLSON, D. E. BROWN, AND E. K. TIMMENS. A Toxicologic Study of Dimethyl Sulfoxide 104

J. L. RADOMSKI, WM. B. DEICHMANN, B. S. AUSTIN, AND WM. E. MACDONALD. Chronic Toxicity Studies on Irradiated Beef Stew and Evaporated Milk 113

J. L. RADOMSKI, WM. B. DEICHMANN, B. S. AUSTIN, WM. E. MACDONALD, AND E. BERNAL. A Study of the Possible Carcinogenicity of Irradiated Foods 122

K.-F. BENITZ, A. W. KRAMER, JR., AND G. DAMBACH. Comparative Studies on the Morphologic Effects of Calcium Carbimide, Propylthiouracil, and Disulfiram in Male Rats 128

ANNOUNCEMENT 163

NUMBER 2, MARCH 1965

H. P. DROBECK, F. COULSTON, AND D. CORNELIUS. Effects of Thalidomide on Fetal Development in Rabbits and on Establishment of Pregnancy in Monkeys 165

MIGUEL CIOC, AND BÄR VON SCHILLING. Changes in Muscular Tissue Produced by Injection of Some Known Drugs 179

J. R. BOISSIER, J. PHILIPPE, P. DESTOMBES, C. DUMONT, Y. BOILOT, M. M. BRAUN, ET C. CARFANTAN. Etude de la toxicité cochléaire de la néomycine et de son dérivé de condensation N-N′-dimethanesulfinique 190

D. A. Berberian, W. G. Gorman, H. P. Drobeck, F. Coulston, and R. G. Slighter, Jr. The Toxicology and Biological Properties of Laureth 9 (a Polyoxyethylene Lauryl Ether), a New Spermicidal Agent 206

D. A. Berberian, W. G. Gorman, H. P. Drobeck, F. Coulston, and R. G. Slighter, Jr. Toxicology and Spermicidal Activity of a New Contraceptive Cream Containing Chlorindanol and Laureth 9 215

Marvin J. Bleiberg, and Henry Johnson. Effects of Certain Metabolically Active Drugs and Oximes on Tri-*o*-cresyl Phosphate Toxicity 227

Joseph S. Amenta, and Abel M. Dominguez. The Effect of Hydrazine and Congeners on $C^{14}O_2$ Respiratory Pattern of Various Metabolic Substrates 236

R. D. Laird, H. M. McCormick, and V. A. Drill. Lipotropic Activity of Combinations of Choline, Vitamin B_{12} and B_{12b}, Folic Acid, and Citrovorum Factor 247

John L. Schmidt, and D. L. Martin. The Effect of Diarylalkylpiperazines and Related Compounds on Plasma and Liver Lipids and Liver Size 257

I. D. Fratta, E. B. Sigg and K. Maiorana. Teratogenic Effects of Thalidomide in Rabbits, Rats, Hamsters, and Mice 268

James M. Fujimoto. Effect of Gum Tragacanth, Urethan, and Phenobarbital on Hexobarbital Narcosis in Mice 287

Monique C. Braude, and John C. Krantz, Jr. Toxicity and Convulsive Activity of a Series of Theophylline Derivatives 291

J. Page Mauck, Jr., Jack Freund, and Reno R. Porter. The Level and Stage of Anesthesia: Its Influence on Cardiac Output and Related Hemodynamics 301

A. S. Weltman, S. B. Sparber, and Tania Jurtshuk. Comparative Evaluation and the Influence of Various Factors on Eye-Irritation Scores 308

K. L. Ewing, and Oscar E. Tauber. Hematologic Picture of Mice during Chronic Ingestion of High Levels of Polyoxyethylene Sorbitan Derivatives 320

Marion D. Aceto, and Louis S. Harris. Effect of Various Agents on Reserpine-Induced Blepharoptosis 329

William Lijinsky, and Philippe Shubik. The Detection of Polycyclic Aromatic Hydrocarbons in Liquid Smoke and Some Foods 337

Ira Rosenblum, Arnold Wohl, and Arthur A. Stein. Studies in Cardiac Necrosis. III. Metabolic Effects of Sympathomimetic Amines Producing Cardiac Lesions 344

Number 3, May 1965

R. G. Bough, E. E. Cliffe, and B. Lessel. Comparative Toxicity and Blood Level Studies on Binapacryl and DNBP 353

D. Waitzová, V. Sobek, M. Háva, and A. Kargerová. Studies on Detoxification of Neomycin 361

J. D. P. Graham. Hydroxycobalamin as an Antidote to Acrylonitrile 367

S. L. Friess and R. C. Durant. Blockade Phenomena at the Mammalian Neuromuscular Synapse. Competition between Reversible Anticholinesterases and an Irreversible Toxin 373

Bernard L. Oser, Mona Oser, Steven Carson, and Stephen S. Sternberg. Toxicologic Studies of Petrolatum in Mice and Rats 382

Om P. Malhotra, Elwood F. Reber, and Horace W. Norton. Effect of Methionine and Vitamin K_3 on Hemorrhages Induced by Feeding a Ration Containing Irradiated Beef 402

J. D. McColl, M. Globus, and S. Robinson. Effect of Some Therapeutic Agents on the Developing Rat Fetus 409

CONTENTS OF VOLUME 7

MICHAEL H. KELEMEN AND ROBERT L. VOLLE. Protective Action by Thiouracil against the Acute Toxicity in Mice of *O*-Ethyl *O*-(4-Nitrophenyl) Phenylphosphonothioate (EPN) .. 418

FRED H. SNYDER, EDWIN V. BUEHLER, AND CHARLES L. WINEK. Safety Evaluation of Zinc 2-Pyridinethiol 1-Oxide in a Shampoo Formulation 425

J. ALFRED RIDER, HUGO C. MOELLER, AND EUGENE A. DEFELICE. Antisecretory Effects of Modaline Sulfate 438

BERNARD L. OSER, MONA OSER, KENNETH MORGAREIDGE, AND STEPHEN S. STERNBERG. Studies of the Safety of Azodicarbonamide as a Flour-Maturing Agent 445

MORTON SHULMAN AND MAX S. SADOVE. Safety Evaluation and Anesthetic Properties of 1,1,1-Trifluoroethyl Chloride 473

Abstracts of Papers for the Fourth Annual Meeting of the Society of Toxicology, Williamsburg, Virginia, March 8-10, 1965 478

Announcements 505

NUMBER 4, JULY 1965

KEITH E. RICHARDSON. Endogenous Oxalate Synthesis in Male and Female Rats 507

JAMES J. HUBER. Some Physiological Effects of the Insecticide Kepone in the Laboratory Mouse 516

L. ENERBÄCK AND P. M. LUNDIN. The Effect of Overloading with Complex Iron Preparations on the Morphology and Function of the Rat Kidney 525

WALTER H. HANSEN, KENT J. DAVIS, AND O. GARTH FITZHUGH. Chronic Toxicity of Cubé 535

J. SIEGEL, H. S. RUDOLPH, A. J. GETZKIN, AND R. A. JONES. Effects on Experimental Animals of Long-Term Continuous Inhalation of a Triaryl Phosphate Hydraulic Fluid 543

THOMAS E. SHELLENBERGER, GORDON W. NEWELL, RITA M. BRIDGMAN, AND JACK BARBACCIA. A Subacute Toxicity Study of *N*-(2-Mercaptoethyl) Benzenesulfonamide *S*-(*O,O*-Diisopropyl Phosphorodithioate) and Phthalimidomethyl-*O,O*-dimethyl Phosphorodithioate with Japanese Quail 550

ROBERT L. ROUDABUSH, C. J. TERHAAR, DAVID W. FASSETT, AND STANLEY P. DZIUBA. Comparative Acute Effects of Some Chemicals on the Skin of Rabbits and Guinea Pigs 559

EUGENE N. GREENBLATT AND ARNOLD C. OSTERBERG. Some Pharmacologic Properties of Thozalinone, A New Excitant 566

JOHN H. WEISBURGER, ELIZABETH A. SCHMEHL, AND SHAMALA R. PAI. Liver Damage by the Carcinogen *N*-Hydroxy-*N*-2-Fluorenylacetamide. Pentobarbital Sleeping Time and Liver Morphology 579

ROBERT E. BURR, A. M. GOTTO, AND DAVID L. BEAVER. Isolation and Analysis of Renal Bismuth Inclusions 588

JOSEPH F. BORZELLECA AND DAVID LESTER. Acute Toxicity of Some Perhalogenated Acetones .. 592

ROGER A. YEARY, CAROL A. BRAHM, AND DONNA L. MILLER. Acute and Subacute Toxicity of an Adduct of Hydralazine and a 3-Ketoalkylthiazide 598

MARTIN SHERMAN, ERNEST ROSS, AND M. T. Y. CHANG. Acute and Subacute Toxicity of Several Insecticides to Chicks 606

ELDON M. BOYD, IRENE GODI, AND M. ABEL. Acute Oral Toxicity of Sucrose 609

WILLIAM E. RIBELIN AND GEORGE J. LEVINSKAS. Diverticulitis and Neoplasia of the Small Intestine of Rats Fed 2-(*p*-Dimethylaminostyryl)-1-methylquinolinium Methyl Sulfate .. 619

EVAN W. MCCHESNEY, WILLIAM F. BANKS, JR., AND DAVID J. SULLIVAN. Metabolism of Chloroquine and Hydroxychloroquine in Albino and Pigmented Rats 627

Announcements 637

CONTENTS OF VOLUME 7

NUMBER 5, SEPTEMBER 1965

D. D. McCollister, C. L. Hake, S. E. Sadek, and V. K. Rowe. Toxicologic Investigations of Polyacrylamides 639

J. L. Radomski, W. B. Deichmann, W. E. MacDonald, and E. M. Glass. Synergism among Oral Carcinogens I. Results of the Simultaneous Feeding of Four Tumorigens to Rats 652

W. B. Deichmann, T. Scotti, J. Radomski, E. Bernal, M. Coplan, and F. Woods. Synergism among Oral Carcinogens. II. Results of the Simultaneous Feeding of Bladder Carcinogens to Dogs 657

Victor DiStefano and Janet J. Klahn. Observations on the Pharmacology and Hemolytic Activity of Dimethyl Sulfoxide 660

Harold C. Hodge, Bernard J. Panner, William L. Downs, and Elliott A. Maynard. Toxicity of Sodium Cyanurate 667

A. W. Halverson, L. G. Jerde, and C. L. Hills. Toxicity of Inorganic Selenium Salts to Chick Embryos 675

Bernard A. Becker and Gabriel L. Plaa. The Nature of α-Naphthylisothiocyanate-Induced Cholestasis 680

F. Homburger, S. Chaube, M. Eppenberger, P. D. Bogdonoff, and C. W. Nixon. Susceptibility of Certain Inbred Strains of Hamsters to Teratogenic Effects of Thalidomide 686

S. L. Friess, R. C. Durant, H. D. Baldridge, Jr., and L. J. Reber. Stereospecific Effects of Tropanol Aryl Esters on Normal and Stressed Neuromuscular Receptors 694

Bernard A. Becker and Gabriel L. Plaa. Quantitative and Temporal Delineation of Various Parameters of Liver Dysfunction Due to α-Naphthylisothiocyanate 708

Kenneth D. Parker, Marjorie L. Dewey, Donald M. DeVries, and Shiv C. Lau. Tissue and Fat Preparation for Pesticide Determination by Gas Chromatography 719

G. R. Girgis, P. Scott, A. R. Schulert, and H. G. Browne. Acute Tolerance of Mice to Tartar Emetic 727

Carl J. Pfeiffer and George H. Gass. Caffeine Ulcerogenesis: A Mechanism Study *in Vivo* .. 732

A. M. Hatch, G. S. Wiberg, Z. Zawidzka, M. Cann, J. M. Airth, and H. C. Grice. Isolation Syndrome in the Rat 737

Robert M. Diener, Donald H. Shoffstall, and Alfred E. Earl. Production of Potassium-Induced Gastrointestinal Lesions in Monkeys 746

Joseph R. Dixon and John T. Mountain. Role of Histamine and Related Substances in Development of Tolerance to Edemagenic Gases 756

Announcement 766

NUMBER 6, NOVEMBER 1965

Herbert H. Cornish and Richard C. Ryan. Metabolism of Benzene in Nonfasted, Fasted, and Aryl-Hydroxylase Inhibited Rats 767

Anthony M. Ambrose and Donald H. Yost. Pharmacologic and Toxicologic Studies on *N,N*-Diethyltoluamide. II. *N,N*-Diethyl-*o*-toluamide and *N,N*-Diethyl-*p*-toluamide 772

D. H. Kaump, J. L. Schardein, R. A. Fisken, and O. J. Sorenson, Jr. Toxicity of the Repository Antimalarial Compound Cycloguanil Pamoate 781

S. L. Friess, H. D. Baldridge, Jr., R. C. Durant, and L. J. Reber. Some Toxic Properties of 2-α-Tropine Aryl Esters 794

Bernard A. Becker and Gabriel L. Plaa. Hepatotoxicity of α-Naphthylisothiocyanate Congeners with Particular Emphasis on Phenylisothiocyanate 804

CONTENTS OF VOLUME 7

J. H. Kay, F. E. Kohn, and J. C. Calandra. Subacute Oral Toxicity of a Biodegradable, Linear Alkylbenzene Sulfonate 812

Bernard L. Oser and Kenneth Morgareidge. Toxicologic Studies with Branched and Linear Alkyl Benzene Sulfonates in Rats 819

David L. Crawford, R. O. Sinnhuber, Floyd M. Stout, J. E. Oldfield, and J. Kaufmes. Acute Toxicity of Malonaldehyde 826

Sheldon D. Murphy. Mechanism of the Effect of Acrolein on Rat Liver Enzymes 833

Vincent P. Cappiello and William M. Layton, Jr. A One-Year Study of the Toxicity of Ethambutol in Dogs: Results of Gross and Histopathologic Examinations 844

L. R. Overby and Lilian Straube. Metabolism of Arsanilic Acid. I. Metabolic Stability of Doubly Labeled Arsanilic Acid in Chickens 850

L. R. Overby and R. L. Fredrickson. Metabolism of Arsanilic Acid. II. Localization and Type of Arsenic Excreted and Retained by Chickens 855

Erratum 868

Author Index 869

Subject Index 874